THE SOCIAL EVOLUTION OF PERSPECTIVE-TAKING. MEAD, TOMASELLO, AND THE DEVELOPMENT OF HUMAN AGENCY

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ABSTRACT: In his social theory, G. H. Mead argues that the development of human agency is linked to the emergence of the human-specific capacity of perspective-taking in the course of social evolution. With his conception of perspective-taking, he knits together three key innovations of pragmatist theory: a non-deterministic understanding of evolution, the notion of organism-environment-interaction, and the idea of the social self. In order to retain Mead's transdisciplinary orientation, it is essential to reevaluate his claims in light of current empirical results – not only from the social sciences but also from the life sciences. Against this background, the paper pursues a threefold objective: First, it aims at a reconstruction of Mead's view on the evolution of sociality, perspective-taking, and agency. Second, the paper contrasts Mead's arguments with Michael Tomasello's seminal contribution to the understanding of human evolution. By drawing on Tomasello's studies, it becomes possible to avoid two major shortcomings of Mead's approach: Tomasello's account of great ape sociality and cognition helps to overcome Mead's dichotomous juxtaposition of animals and humans; moreover, Tomasello's reconstruction of hominin evolution allows to resolve contradictions between Mead's phylogenetic and ontogenetic lines of argument. Finally, the paper proposes a refined conception of perspective-taking. The results of the Mead-Tomasello-comparison, I argue, suggest not only that three levels of perspective-taking should be systematically distinguished but also that the consecutive emergence of these three levels of perspective-taking structure(ed) both the evolutionary and the ontogenetic development of human agency.

Keywords: Mead, Tomasello, pragmatism, perspective-taking, role-taking, normativity, evolution, social cognition, sociology, primatology, anthropology, developmental psychology

1 Introduction: Pragmatism and the social evolution of agency

Pragmatist thinking revolves around the concept of action. Most of the key insights of pragmatism are connected to its understanding of *action and agency*: from the reconceptualization of consciousness, truth, and the self, to the interpretation of religious, aesthetic, and scientific experience, to the ideas on progressive education and social reform.[1] The pragmatist conception of action is fundamentally relational. Action is not something an isolated organism plans and does. Rather, action is the interplay between an organism and its environment. Agency, accordingly, is the capacity to engage in organism-environment-interaction.[2] This relational viewpoint entails various implications. Three are of special importance: First, because action is conceptualized as a relational interplay with a contingent environment, it does not only involve active but also passive dimensions. Engaging with the environment implies "doing and suffering" (Dewey [1925] 2008, 29). Second, because action is seen as relational, cognitive processes, affective states, or behavioral patterns of an organism have to be understood as reactions to the challenges the current situation poses and the opportunities it affords. Third, the relational conception also implies a constitutive dependency of the organism on the environment. This holds true not only for the physical environment (nutrition, warmth, shelter, etc.) but also for the social environment (care, cooperation, learning, etc.).

Pragmatism is not only built on a specific understanding of action and agency; it is also a constitutively *evolutionary* perspective. Evolutionary theory informed pragmatist thinking in various areas: in psychology and social theory just as in epistemology, historiography, or even cosmology.[3] However, the pragmatist reading of evolutionary theory differs markedly from deterministic or 'social Darwinist' approaches. Due to this general evolutionary orientation, the conceptualization of action as an interplay between organism and environment does not only apply to humans but to all forms of life. Consequently, human agency has to be seen as one specific mode of engagement with the environment that took form in the course of evolution and that resulted from specific environmental challenges.

[1] Important accounts of the central role of action and agency in pragmatist thought can be found in Bernstein ([1971] 1999), Joas ([1992] 1996), and Strauss ([1993] 2014). For a short overview, see Dorstewitz (2018).
[2] On the origins and development of the pragmatist concept of organism-environment-interaction, see especially Pearce (2014).
[3] For the crucial importance of evolutionary theory for the development of pragmatism, see Wiener (1972[1949]), Pearce (2016), Nungesser (2017).

Because pragmatism is intimately connected with a specific conception of action and agency as well as with a specific understanding of evolution, we also find important arguments on *the evolution of human agency* in the writings of the pragmatists. William James (1879, 1950[1890], ch. V), for example, famously made use of evolutionary arguments to rebut Thomas H. Huxley's deterministic claim that evolutionary and physiological research prove that all organisms have to be perceived as "automata" (Huxley [1874] 1898). Instead, James argues, undetermined agency has to be understood as a highly functional adaptation of higher animals that allows for *flexible, intelligent, and controlled activity* in complex and contingent environments. John Dewey repeatedly builds up his arguments on reflections on the interrelation between organisms and their environment. Usually, he first describes general characteristics of organism-environment-interaction before he discusses the differences between different modes of interaction. He focuses especially on the human-specific form of environmental interaction, which is characterized by frequent *behavioral inhibitions* that result from problematic situations and that initiate processes of *learning and adaptation* (see esp. Dewey [1916] 2008, ch. 1; [1925] 2008, ch. 7, [1938] 1986, ch. 2). Charles Horton Cooley ([1902/22] 2009) advocates the combination of natural and cultural history in order to explain the specifics of human nature. In the course of its evolution, Cooley argues, human nature became more plastic and, hence, socially malleable. The social molding of individuals finds its most important expression in Cooley's well-known concept of the "looking-glass self", according to which individual selves are necessarily *socially constituted selves* because they arise through a social 'mirroring process', in which the individuals *perceive, control, and evaluate themselves* according to the (imagined) perceptions and evaluative standards of others.

The theoretical innovations, which we find in James, Dewey, and Cooley, converge in the work of George Herbert Mead (Nungesser and Wöhrle 2013).[4] In his writings, Mead argues that the emergence of human agency is linked to the human-specific capacity of *perspective-taking*, which is connected to the key-concepts just mentioned. As will be shown in the following, perspective-taking, according to Mead, requires a strong and specific kind of *behavioral inhibition* that can only occur in *social interaction*. Due to the inhibition of social interaction, humans *learned* to perceive themselves through the eyes of others (and every human has to learn it again). This capacity, in turn, allowed individuals to *perceive, control, and evaluate* their own activities *flexibly and intelligently* with reference to *socially mediated standards* including normative or moral rules. Hence, it is in Mead's work, where we find the most consequent connection of three core innovations of pragmatism: Mead interlocks the *non-deterministic understanding of evolution*, the notion of *organism-environment-interaction*, and the idea of the *social self*. And it is the key-concept of perspective-taking that knits these three innovations together. Thus, if one wants to understand the emergence of human agency from a pragmatist standpoint, it seems indispensable to focus on this concept.

Mead developed his account of the emergence of human sociality, perspective-taking, and agency more than one hundred years ago. From today's perspective, his work appears to be highly interdisciplinary. Mead's arguments touch on various areas from evolutionary theory, ethology, and developmental psychology to linguistics, sociology, and philosophy. However, the differentiation of clearly demarcated academic disciplines had only begun when Mead developed his social theory. Some disciplines such as developmental psy-

[4] For Mead's perspective on James, see especially Mead (1903, 88–92, 101-102, 1909, 402); see also Joas ([1980] 1985, 37, 77, 83, 109); for the seminal importance of Dewey for the development of Mead's thought, see Mead (1903, 98–102, 112) as well as Joas ([1980] 1985, 20-22, ch. 4) and Cook (1993, 37ff., 48ff.); for Mead's view on Cooley, see Mead (1909, 402, 1910b, 176, 1913, 375; Mead [1930] 2009); differing interpretations of the relation between Cooley's and Mead's social theory can be found in Schubert (2006), Wiley (2011), Nungesser and Wöhrle (2013), and Misheva (2019).

chology hardly existed. This disciplinary constellation of Mead's work is relevant for two reasons: First, despite the transdisciplinary character of Mead's work, his writings became important mainly in sociology where Mead was canonized as a disciplinary classic (Coser 1971; Joas 1997). In other disciplines his work has gained little attention – even in his 'home discipline' of philosophy (Burke, F. and Skowronski 2013, vii–viii; Kilpinen 2013, 4).[5] Second, because Mead's work has mainly been discussed in sociology, many of his arguments – especially those that refer to biology or psychology – have either been ignored or accepted uncritically. Yet, if we want to avoid disciplinary isolation and retain the transdisciplinary orientation of Mead's pragmatism, it is essential to *reevaluate his claims in light of current empirical results* – not only from the social sciences but also from the life sciences.

Against this backdrop, this paper pursues a threefold objective: First, it aims at a *reconstruction of Mead's view on the evolution of sociality, perspective-taking, and agency*. This reconstruction will be presented in the following section of the paper (section 2). By reconstructing Mead's juxtaposition of animal and human sociality and his account of the emergence of perspective-taking in human sociality, it becomes possible to identify important shortcomings of his account. These shortcomings do not only follow from current empirical results that conflict with Mead's claims but also from inherent tensions between different lines of argument in his writings. Second, the paper *contrasts Mead's arguments with Michael Tomasello's seminal contribution to the understanding of human evolution* (section 3). Comparing Mead and Tomasello is promising because the two authors approach questions of the evolution of human sociality and social cognition in a similar way. Like Mead, Tomasello combines insights from comparative and developmental psychology with linguistic results in order to tackle major issues in social and cultural theory. Also, both Mead and Tomasello use evolutionary arguments in order to show why humans became constitutively social and cultural beings. In other words, the quintessence of their work is not to answer sociological questions by biological means but to understand biologically why the social and cultural sciences are indispensable.[6] I will argue that, by drawing on Tomasello's studies, it becomes possible to avoid two major shortcomings of Mead's approach: On the one hand, Tomasello's primatological research shows that at least some forms of animal sociality do not conform to Mead's account and that at least some animal species seem to be able to engage in (limited forms of) perspective-taking. This suggests that Mead's dichotomous juxtaposition of animals and humans is untenable. On the other hand, Tomasello's research on human evolution suggests that the complexity of human sociality, social cognition, and agency developed in stages. This allows for a gradual account of the social evolution of perspective-taking, which also helps to avoid important contradictions between Mead's phylogenetic and ontogenetic lines of argument. Finally, the paper proposes a *refined conception of perspective-taking* (section 4). The results of the Mead-Tomasello-comparison, I argue, suggest not only that *three levels of perspective-taking* should be systematically distinguished but also that the consecutive emergence of these three levels of perspective-taking *structure(ed) both the evolutionary and the ontogenetic development of human agency.*

[5] For the specifics of the reception of Mead's work, see especially Joas (1997, 2015), Cook (1993, xv, 70-74, 203-204), and Huebner (2014).

[6] Comparing Tomasello's and Mead's work is also promising for other reasons. First, Tomasello himself has repeatedly – though mostly cursorily – identified points of contact with Mead's theory (e.g., Tomasello 1999, 13, 70, 89, 2009, 41–42, 2014, 2, 57, 75, 104, 122, 151, 2016, 96, 115, 136, 158; 2019, 2, 19). Second, comparisons between the two approaches have already been presented in the literature on various issues (e.g., Loenhoff and Mollenhauer 2016; McVeigh 2016; Nungesser 2012, 2016; Ofner 2016). Finally, Tomasello takes a middle position in various questions of current research – for example, when it comes to the complexity of primate social cognition, animal (proto)cultures, or the question of great ape morality. Therefore, his work constitutes a good entry point into current controversies.

2. Reconstruction: Mead's comparative analysis of sociality, perspective-taking, and agency

Mead does not consider the behavior of organisms in an individualistic way. Instead, he understands it as socially embedded, i.e., as part of a larger group activity, which he calls the "social act" (e.g., Mead [1934] 2015, 18, 44, 178). Accordingly, his social theory starts by asking how the activities of different organisms interlock with each other so that a coordinated social process takes shape. The behavioral and cognitive capacities of individual organisms, then, have to be understood as functional adaptations to the requirements of the social processes they are involved in. Although Mead (like his fellow pragmatists) was deeply influenced by Darwin and his evolutionary gradualism (Nungesser 2017), he distinguishes only two modes of social coordination: one he considers to be typical of nonhuman animals, the other he views as human-specific.

If we want to critically assess Mead's account of the evolution of human agency, we have to reconstruct how he conceptualizes the differences between human and animal sociality (2.1). As will become clear, according to Mead, the marked differences between animal and human sociality can be explained by looking into one specific key difference between humans and other animals: the ability of perspective-taking. Accordingly, in order to understand the evolution of human agency, we have to reconstruct how Mead explains the emergence of perspective-taking (2.2). As the critical reconstruction will show, Mead's account of the genesis of perspective-taking entails various problems. These problems do not only become apparent if one contrasts Mead's ethological and evolutionary arguments with current empirical research. Rather, these problems also follow from internal tensions of Mead's theory (2.3). In the next main section of the paper (3), these problems and tensions will be used as starting points for a reformulation of Mead's evolutionary account of human agency.

2.1 Mead's juxtaposition of animal and human sociality

Mead distinguishes between two basic modes of how organisms can adjust their behavior to one another. On the one hand, Mead describes an *instinct-based mode of coordination*, which, in his view, regulates the group processes of nonhuman animals. This mode of coordination operates through the exchange of gestures. According to Mead (1909, 406), a gesture can be understood as a "torso", i.e. as a 'remnant' or 'abbreviation' of an older pattern of social behavior. Mead (e.g., 1910b, 177–78) repeatedly illustrates this argument by referring to the gestural exchange in a dog fight. According to Mead, the gestures of dogs – such as the baring of teeth or the tensing of posture – have developed by reducing the actual fighting behavior to its beginnings. Hence, in the course of canine evolution the act of biting was contracted, resulting in the stereotypical gesture of teeth-baring. Fighting actions were thus transformed into communicative actions, i.e. activities that are carried out solely on the basis of their communicative value for other group members.[7] Thus, it became possible to convey a social claim (e.g., to dominance) without resorting to physical (and dangerous) confrontation. Gestures like teeth-baring, Mead argues, trigger instinctive response reactions of other group members, which in turn provoke subsequent reactions. This chain reaction results in a "conversation of gestures", through which the behavior of animals is coordinated (e.g., Mead [1934] 2015, 43, 178, 358). An example of such a coordinated pattern of animal interaction is the mutual circling of the dogs that can often be observed.[8]

According to Mead (1925, 263), dog fighting "does not call for more than inherited physiological adjust-

[7] Today, the process Mead describes is discussed under the heading of "behavioral" or "phylogenetic ritualization". The concept was first developed by Julian Huxley and later became a basic concept of modern ethology (Burkhardt, Jr. 2005, 117–20; Goodenough, McGuire, and Jakob 2009, 387–90)

[8] Although Mead was quite familiar with research in animal psychology (Huebner 2014, ch. 2), he did not rely on methodologically established knowledge but on his own experience with pets for his main illustrative example of dog fighting (Irvine 2003). Systematic psychological research on dogs only began much later (see, e.g., Hare and Woods 2013).

ment". What is more, Mead assumes that this kind of instinctive group coordination is characteristic of nonhuman animals in general.[9] Hence, this claim also applies to nonhuman primates.[10] Given this conception of instinctive and fixed social coordination, it is logical that Mead claims that animal sociality can only become more complex if the instinctive behavioral patterns vary in different members of the social group. This is the key argument in Mead's comparison of humans and social insects. Thus, the societies of social insects attain their complexity not because they possess more complex social cognitive skills but because the hard-wired behavioral programs differ in the different castes (see esp., Mead [1934] 2015, ch. 30).

To understand Mead's argumentation, it is crucial that he assumes a correspondence between the behavioral and cognitive abilities of different species and the challenges faced by members of these species in the course of the respective group activities. Thus, Mead seems to assume that a social order that is regulated by dominance hierarchy – as it can be found in dogs – requires above all an accurate perception of gestures and a quick reaction of group members in order to keep the social process running effectively. This results in a functionally coherent structure. Since, according to Mead, animal interaction is based on an evolutionary ingrained and therefore precisely regulated interplay of behavior, perspective-taking, learning, or self-reflexivity are neither possible nor necessary for this form of sociality. Accordingly, normativity plays no role for animal behavior. Where there is no indeterminacy of action, there is no possibility to evaluate and modify it on the basis of normative standards.

Mead contrasts the instinct-based coordination mode of animals with *a human-specific form of social coordination* that is based primarily on the ability of perspective-taking.[11] Perspective-taking makes it possible to see oneself as part of the interaction of the social group, to anticipate the reactions of others to one's own behavior, and to adapt one's own behavior with regard to social expectations. Mead repeatedly illustrates these human-specific behavioral capacities using the example of a boxing match (sometimes also a fencing match).[12] Three differences are central in comparison to the dogfight. First, according to Mead, only humans can feign in a fight. In order to use a feint, a boxer must be able to imagine how her opponent reacts to her own behavior. Only then she can make use of this (assumed) reaction for her own success. The feint therefore illustrates the human ability to take the perspective of others in a prototypical way. Secondly, the boxing match illustrates that the behavior of human fighters is not innate, but the result of long-term processes of learning and habituation. In other words, boxing is not a hard-wired or genetically fixed skill but a matter of training and practice. Thirdly, the fact that the behavioral patterns in boxing are not innate, but have to be learned, implies that it is possible to deviate from these patterns. It is precisely this possibility of deviation that necessitates a new form of behavioral regulation. In the case of boxing this regulation takes the form of explicit and implicit rules. Although he does not deal with this topic in his earlier writings, in his later analysis of children's play behavior Mead argues that this normative and moral

[9] Mead's position regarding the cognitive and behavioral abilities of nonhuman animals is not consistent throughout his work. In some studies he assumes stronger learning abilities of animals and a more developed inhibition of behavior (e.g., Mead 1918, 577–79). In my view the more restrictive view is clearly dominant, however.

[10] In various studies, Mead briefly discusses the mental and behavioral abilities of nonhuman primates, especially their capacity to perceive and manipulate physical objects (see esp., Mead 1907, 389, [1938] 1964, 24, 136). If one considers the contemporary works of Robert Yerkes or Wolfgang Köhler – of which Mead ([1938] 1964, 136) was at least partly aware – his position on primates appears, again, quite restrictive. To my knowledge, Mead does not comment on the social behavior of nonhuman primates, which is not surprising given the state of primatological research at the time.

[11] Mead uses different formulations to capture the process of perspective-taking. Often, he speaks of "taking the attitude of the other" or "taking the role of the other". Especially in his late work, he increasingly uses the concept of "perspectives" (e.g., Mead 1913, 377, 1925, 259ff., [1934] 2015, 153ff., 179ff.). In the last section of this paper I will propose a refined conception of perspective-taking that systematically distinguishes between the different terms.

[12] On this, see especially Mead (1910b, 177–78, 1925, 263, 271, [1934] 2015, 42–45, 63, 68-74, 162).

form of social coordination builds up on the ability of perspective-taking.[13] Only if a person is able to view and evaluate her own behavior (or options for behavior) in the light of the expectations of others is it possible to organize behavior in a normative way.

2.2 Inhibition, object-constitution, and social interaction

By contrasting the two forms of fighting interaction, Mead identifies the ability of perspective-taking as a key difference that distinguishes humans from all other animals. This claim, of course, raises the question of *how this ability has developed*. In a seminal series of articles, published between 1909 and 1913, Mead devotes himself primarily to this question.[14] In order to understand the argumentation Mead develops in these articles it is important to consider his *general considerations on action and perception*, which he had already begun to develop earlier. Drawing on John Dewey's early pragmatist work, Mead (1903, 1907) argues that the behavioral indeterminacy of humans leads to frequent interruptions and inhibitions of activities.[15] Due to their lack of instinctive patterns and the resulting "increase in inhibition" (Mead 1910b, 178), human individuals often 'do not know what to do'. In these phases of inhibition, they then explore their environment in order to identify and solve the problem they are facing. The human capacity to explore the environment is facilitated by another human characteristic – the flexible use of hands. Not only are humans one of the few species that have hands. What is more: According to Mead (1907), they are the only organisms that can use them to explore their environment in a differentiated and delicate way. Thus, when faced with a problem, humans frequently discover new ways of action by manually exploring the environment. Often, in the course of this process, new objects are constituted in the experience of the subjects. This constitution of new objects does not necessarily entail the discovery of objects that have been completely overlooked before. In many cases, it means that objects gain a new meaning; and this meaning, from a pragmatist standpoint, always results from the relevance of the object in terms of action.[16] So, for example, a child may first perceive a candle as a fascinating object that moves and shines in interesting ways. Yet, in the moment it touches the flame, a problem of action arises. The solution of the problem (withdrawing the hand) then constitutes a new object. The candle, now, is (also) perceived as a "light-that-means-pain-when-contact-occurs" (Dewey 1896, 360).[17] In this way, by facing and handling problems, the environment of human individuals is constantly enriched with new objects. Inhibition, thus, is necessarily linked to learning and an increased knowledge and control of the environment. This is why, from a pragmatist view, the marked indeterminacy and frequent inhibitions of human action are preconditions of effective, skillful, and intelligent conduct.

In his social theory, Mead applies these crucial pragmatist insights into the importance of behavioral inhibition and indeterminacy to the specifics of the problems that individuals face in their interactions with the *social* environment. Problems of social interaction, Mead argues, differ significantly from those individuals encounter when interacting with physical objects. To illustrate this claim, Mead (1910a, 402–3) gives the example of a hiker who faces the question of whether the weather will hold or whether there will be rain. The hiker, thus,

[13] The fact that Mead discusses the relation between perspective-taking and moral agency only with respect to human ontogeny and socialization generates important problems for his theory (more on this in section 2.3).
[14] This series consists of five articles: Mead (1909, 1910a, 1910b, 1912, 1913). For a detailed discussion of these publications, see especially Joas ([1980] 1985, ch. 5).
[15] The single most important influence on Mead's earliest studies was Dewey's pathbreaking paper "The Reflex Arc Concept in Psychology" (Dewey 1896).
[16] By emphasizing not only the crucial importance of bodily interaction with the environment for cognition but also the enactive, that is constitutively action-oriented, character of cognition, Mead (and Dewey) anticipated later developments in the psychology of perception, the cognitive sciences, and neurophysiology (for more on that, see Madzia 2013; McVeigh 2016; Nungesser 2017; Shalin 2017).
[17] Dewey adopts the example of the child and the candle from William James (1950[1890], 24, 72) (who, in turn, adopted it from the Austrian anatomist Theodor Meynert). Later, Mead also refers to this example (Mead 1903, 100–101, 1910a, 400–401).

is confronted with a "conflict of tendencies" (hiking vs. taking shelter). This conflict provokes an inhibition of action, which, in turn "directs the attention [to] the sharper definition of the objects". Thus, the 'meteorological problem' the hiker is confronted with will lead to a more precise perception of the clouds and the wind because these environmental objects are relevant for her decision whether to postpone the hike or not. However, while the inhibition of action in this case leads to an exploration of the environment and to a reflexive adaptation of behavior, it does not, according to Mead, provoke a *self*-reflexive adaptation of behavior. The main reason for this, Mead argues, is that the behavior of the hiker herself is irrelevant for the interaction, since it does not influence the weather. According to Mead, this is where the difference to social interaction becomes apparent. If one compares the situation of the hiker with that "of a man face to face with a number of enemies" (Mead 1910a, 404), the difference becomes clear. Here the activity of the man directly influences the behavior of the individuals he is interacting with. It is precisely this mutual reactivity of social situations that induces a decisive learning event. In contrast to the instinct-controlled animals, Mead claims, in such a mutually reactive situation human beings can learn to realize that the behavior of others is influenced by a social object that they have not noticed before, namely, themselves. "We are conscious of our attitudes because they are responsible for the changes in the conduct of other individuals." (Mead 1910a, 403) While in the case of the hiker the "direction of attention" (Mead 1910a, 402) is unilinear from the individual to the properties of the physical environment, in the case of social interaction it is extended by a self-reflexive feedback loop.

According to Mead, the constitution of self-reflexivity in social interaction is facilitated by a specific type of communicative signals, which he calls – following Wilhelm Wundt – "vocal gestures" (*Lautgebärde*). What distinguishes the "vocal gesture" from other forms of communication (facial and bodily expressions etc.) is that it can be perceived both by co-present individuals *and* by the individual who expresses it. Because it excites the 'sender' as well as the 'receiver', the vocal gesture causes the individual to "be affected as others are affected" (Mead 1912, 405). This bidirectional irritation and inhibition enable the individual to associate her self-excitation with the behaviors and "attitudes" of the others. And because it perceives a similarity in the reactions of the other and the yet unknown social object of herself, the individual becomes able to perceive herself as a self that interacts and influences others. This is why the "vocal gesture", according to Mead, is crucial for the constitution of self-reflexivity and symbolic communication.[18]

Human agency, for Mead, is based on the constitutive indeterminacy of human behavior and it is constituted through a process of learning that can occur only in the context of social and communicatively self-exciting interaction. Only in this way can individuals become a social object in their own experience. "The 'me' is a man's reply to his own talk. Such a me is not then an early formation, which is then projected and ejected into the bodies of other people to give them the breadth of human life. It is rather an importation from the field of social objects into an amorphous, unorganized field of what we call inner experience. Through the organization of this object, the self, this material is itself organized and brought under the control of the individual in the form of so-called self-consciousness." (Mead 1912, 405) Thus, from a Meadian standpoint, only when the social object of the "self" is constituted in the experience of individuals through the process of perspective-taking, they become able to plan, control, and evaluate their activities in a self-reflexive way.

2.3 Problems and tensions in Mead's comparative account of perspective-taking

Mead's innovative theory tries to understand the emergence of perspective-taking and human agency by ana-

[18] Here, I can only give a rough outline of Mead's complex (and problematic) argument on the process of self-constitution. For a more detailed discussion, see especially Cook (1993, ch. 6).

lyzing the interconnection between human behavioral inhibition and indeterminacy on the one hand and the challenges of human social interaction on the other. If we take seriously Mead's transdisciplinary claim, we must not only check his theoretical considerations for argumentative consistency; also, we need to scrutinize his arguments against the background of current empirical findings. Such a reassessment reveals various *conceptual and empirical problems*. Four of these problems are especially important.

1) If we contrast Mead's characterization of animal sociality with *recent findings in ethology and comparative psychology*, it is obvious that Mead posits *far too wide a gap between the behavioral competencies of humans and animals*.[19] Particularly problematic is that Mead discusses only one form of nonhuman social coordination and hardly considers more complex sociocognitive abilities of animals. If we consider the methodological assumptions and empirical state of knowledge in ethology and animal psychology of Mead's time, this is hardly surprising.[20] This makes it all the more important to compare Mead's social theory with current results in these disciplines.

2) In his arguments on the social interactions of animals and humans, Mead primarily adopts a "functional perspective" (Niedenzu 2012, 299); that is to say, he analyzes how the interplay between the inhibition of behavior, perspective-taking, and self-reflexively controlled behavior results in a robust and effective mode of social coordination. What is *missing*, however, is a *genuinely evolutionary perspective* that inquires into the *ecological changes and dynamics of selection*, which could explain the emergence of more complex behavioral and cognitive competencies.[21]

3) In his 1922 paper "A Behaviorist Account of the Significant Symbol" Mead formulates an important assumption regarding the *relationship between human evolution and human ontogeny*. Following his basic argument that the "self arises in conduct, when the individual becomes a social object in experience to himself", he states the following: "It is a development that arises gradually in the life of the infant and presumably arose gradually in the life of the race." (Mead 1922, 160) According to this quote, Mead assumes that the emergence and development of perspective-taking followed the same general logic on the phylogenetic as on the ontogenetic time scale. However, if we look for evolutionary arguments on the development of perspective-taking in Mead's writings, we only find the functional arguments on the emergence of the basic form of perspective-taking discussed above. In contrast, the gradual development of more complex forms of perspective-taking is discusses only in Mead's later analyses of human socialization. As is well known, in these later studies, Mead distinguishes between two major steps in the development of perspective-taking, which he identifies by looking into the play behavior of children.[22] The first form of perspective-taking, Mead argues, is limited to specific individuals (often called "significant others"[23]). This form of per-

[19] Criticisms of Mead's juxtaposition of animals and humans can especially be found in the field of Human-Animal-Studies (e.g., Alger, J. and Alger, S. 1997; Myers 2003; for an evaluation of these criticisms, see Gallagher 2016b).

[20] As a reaction to Darwin's gradualistic perspective, an "excessive fear of anthropomorphism" (Degler 1991, 331) developed in American comparative psychology in the late 19th and early 20th centuries. It seems that this "fear" also left its mark in Mead's writings.

[21] Especially in *Mind, Self, and Society*, Mead ([1934] 2015, ch. 4, 12, 13) repeatedly addresses the phylogenetic changes in the central nervous system and the increased encephalization of humans. He also connects these issues with the question of behavioral indeterminacy. From today's perspective his arguments appear simplistic, which is not surprising given the state of research (Gallagher 2016a, 320). What is more surprising is that he does not combine his arguments with considerations of the changes in the natural and social environment, which may have contributed to these neurophysiological changes.

[22] Mead does not yet distinguish between "play" and "game" in his pivotal series of articles published between 1909 and 1913, but only in his publications of the 1920s. He draws the distinction explicitly in his 1922 essay "A Behaviorist Account of the Significant Symbol" (Mead 1922, 160–62). It is then described in more detail in "The Genesis of the Self and Social Control" and especially in *Mind, Self, and Society* (Mead 1925, 268–70, [1934] 2015, ch. 20).

[23] While the term of the "significant other" became associated with Mead's account of socialization, it was coined only in 1940 by Harry Stack Sullivan (see Burke, J. 2011, 548).

spective-taking allows the child to engage in "play" interactions, in which the child adopts different situationally and dyadically assigned roles (such as "robber" and "police man" or "mother" and "child"). Already in this phase, children understand that different roles are complementary and reversable. For example, if the father and the child play 'shopping', the child realizes that the shopping interaction presupposes two interdependent roles: someone who gets the products (customer) and someone who sells the products (cashier). The child also understands how the other role would be played (often, children enjoy to switch between roles while playing). The second form of perspective-taking develops later and is more complex. It allows the child to take the perspectives not only of multiple individual persons but also of abstract entities such as groups or institutions. Mead uses the term of the "generalized other" to refer to this transsituational and more abstract "bird's eye-view". Taking the perspective of the "generalized other" is a crucial step in the development of human agency since it enables the understanding of general rules and expectations and, thus, allows for the participation in complex social associations such as organizations. Hence, due to his "ontogenetically truncated explanatory strategy" (Niedenzu 2012, 301), we are confronted with a *marked incongruity between the phylogenetic and the ontogenetic time scale* in Mead.[24] What is *missing* is a *reconstruction of the gradual refinement of perspective-taking in the course of human evolution*.

4) Because Mead examines the gradual development of perspective-taking only from an ontogenetic point of view, crucial aspects of human agency are missing in his comparative analyses of animal and human sociality. This holds especially true for the emergence of normatively controlled behavior, that is, *moral agency*. Of course, Mead does address the *basic conditions* of the normative regulation of action in his earlier comparative work, since he deals with the emergence of perspective-taking, behavioral reflexivity, and the social self. Nevertheless, the idea that normative self-reflexivity is key for an understanding of agency surfaces only on the very last pages of his early series of articles (Mead 1913, 378–79). In contrast, the development of an understanding of normative perspectives, rules, and role-expectations is of seminal importance in his comments on human ontogeny and socialization. Consequently, Mead's claim that the phylogenetic and the ontogenetic development exhibit a parallel pattern implies that the gradual emergence of perspective-taking in the course of human evolution must have been accompanied by a gradual increase in the complexity of normatively structured behavior. The absence of such an account of the evolution of human normativity, thus, constitutes a prominent gap in Mead's anthropological account. This is why, in the following, particular attention will be paid to *the evolutionary emergence and refinement of moral agency*.

Against the background of these problems and tensions the following questions arise: 1) Are there nonhuman forms of social coordination that do not correspond to Mead's conceptualization of animal sociality? And, if so, do these forms of social coordination involve capacities that Mead considers to be human monopolies (such as behavioral inhibition, processes of perspective-taking, normativity)? 2) What ecological conditions and challenges led to the emergence of human perspective-taking and agency? 3) Did the ability of perspective-taking and 4) the normative regulation of action develop gradually in the course of anthropogenesis? These questions will now be discussed by drawing on current empirical findings.

3. Current research: Tomasello on the gradual development of human sociality, perspective-taking, and agency

In order to assess the plausibility of Mead's argumentation on the social evolution of human sociality, perspective-taking, and agency today, it is necessary to refer to current

[24] The problematic relationship between the phylogenetic and ontogenetic line of argumentation in Mead has also been noted by Shalin (1989, 38–39) and Cook (1993, 205).

studies that compare human and animal sociality, identify the social-cognitive, motivational, and normative characteristics of these different forms of sociality, and outline a plausible narrative how human-specific forms of sociality, social cognition, and morality emerged. An important approach that lends itself to such a comparison is Michael Tomasello's evolutionary cultural psychology.[25] As the following discussion shows, the comparison of Mead's arguments with Tomasello's work suggests that key ideas of Mead are still innovative and theoretically productive, but need to be reformulated considerably against the background of recent empirical findings. This thesis will now be elaborated in more detail with regard to two core aspects. First, it is shown on the basis of primatological findings that Mead's comparative arguments on the genesis of human sociality, agency and perspective-taking are based on a far too dichotomous distinction between 'animals' and 'humans' that is not only empirically dated and incorrect but also poses problems for an evolutionary explanation of hominization. It is argued that great ape sociality can be understood as one crucial transitional step that mediates between the two modes of social coordination described by Mead. Such a transitional step also paves the way for a gradualistic understanding of the evolution of human sociality, perspective-taking, and agency (3.1).[26] Second, it is argued that current research such as Tomasello's makes possible the reconstruction of the development and differentiation of human perspective-taking and agency in the course of hominin evolution. While Mead hardly touches on the question of how the patterns of social interaction and perspective-taking changed after the emergence of the first humans, Tomasello presents detailed arguments on these changes. In the following it is argued that these arguments, albeit necessarily still speculative to a certain degree, not only help to close a critical gap in Mead's anthropological account but also help to resolve the discrepancies between Mead's account of human evolution and his well-known description of human ontogeny and socialization (3.2).

3.1 The social coordination of great apes as an intermediate step

Current research in the behavioral sciences demonstrates that there are forms of animal sociality that do not correspond to either of the two modes of coordination described by Mead. An example of this, which is particularly important for anthropological reflection, is to be found in great ape societies. In a way, the social coordination of apes can be understood as a transitional step that mediates between the forms of social coordination described by Mead.

If one analyzes the social behavior of great apes by means of pragmatist key concepts, it does not correspond to Mead's characterization of the coordination of animal behavior in central aspects. Importantly, various species are able to *inhibit* their behavior to a certain degree, meaning that they do not act instinctively. This becomes especially clear in primatology. For example, in competitive experiments chimpanzees modify their behavior depending on the situation. If it is disadvantageous for them that a rival hears or sees them, they are able to suppress or change their behavior (e.g., Hare, Call, and Tomasello 2006). Moreover, great ape behavior exhibits a *high degree of flexibility* and is strongly based on *learning*. This applies to interaction with the physical environment, such as the use of tools, which is characterized both by individual and social learning processes (e.g., Boesch 2012, ch. 3).[27] It also applies to interaction

[25] In the following I will focus on the productive potential of the Mead-Tomasello-comparison. Accordingly, I will highlight similarities and complementarities between the two approaches. This does not mean that there are no important differences between Mead and Tomasello. In fact, substantial differences with regard to the respective conceptualizations of action, cognition, or self-constitution are identified in the literature (see, e.g., Loenhoff and Mollenhauer 2016; Nungesser 2012, 2016; Ofner 2016).

[26] The importance of primatological studies of living great apes for an understanding of human evolution rests on the methodological assumption that their behavior and cognition are similar to the behavior and cognition of the last common ancestor of great apes and humans (see, e.g., Tomasello 2014, 15, 41, 2016, 20, 35).

[27] Tool use is one of the domains where the dichotomous and dated status of the pragmatists' accounts of animal behavior is most obvious. Dewey and Mead, for example, deny that animals are able to use tools (see, e.g., Dewey [1925] 2008, 146; Mead 1906). In recent decades, diverse and in part complex forms of tool use have been described in a broad variety of species. Moreover, current research shows that animal tool use is con-

with the social environment such as communication. In addition to genetically fixed sounds, chimpanzees, for instance, make use of ontogenetically learned manual gestures, which they use in a situation-appropriate manner (e.g., Tomasello 2008, ch. 2).[28] Moreover, both in the area of communication and in tool use there are *group-specific behavioral patterns*, which some scholars characterize as "protocultures" or "wild cultures" (e.g., Boesch and Tomasello 1998; Boesch 2012).

Considering these findings, the behavior of at least some animals cannot be described as instinctive, since important areas of their activity are inhibitable, flexible, and based on individual as well as social learning. Against this background, the question arises of whether the flexibilization of behavior in great apes is accompanied by the ability of perspective-taking, as it is in humans. In fact, many primatological studies suggest that great apes *can take the perspective of conspecifics to a certain extent and with regard to certain aspects*. For example, the aforementioned situation-specific adaptation of behavior and communication that can be observed in great ape interaction can only be explained by postulating a nonhuman form of perspective-taking. In competitive experiments, chimpanzees vary their behavior spontaneously in such a way that others cannot see or hear their approach to the desired food. If, on the other hand, they want to receive food from a co-present human, the apes make sure that they gesture within their perceptual field (e.g., Tomasello 2008, ch. 2). Thus, apes seem to be able to adopt the perspective of others, at least in terms of their perceptions and intentions. Moreover, great apes cultivate long-term, yet flexible forms of social relationships. In doing so, they not only reveal an understanding of their own alliances, friendships, and rivalries, but also an understanding of relationships between third parties (e.g., Tomasello 2016, 23–31). This also indicates complex and flexible social cognitive abilities.

Primatological research shows that there are modes of social coordination that are not organized in a purely instinctive way and include – at least to a certain extent – flexible and learned forms of behavior, inhibition of behavior, perspective-taking, and strategic management of relationships. Various lines of research suggest that these competencies can be understood as the *result of the competitive challenges prevailing in primate groups*. This thesis of the social origin of primates' extraordinary intelligence has become known as the "social intellect" hypothesis or "Machiavellian intelligence" hypothesis, since it claims that intelligence arose primarily as a result of the increased reproduction of individuals who were particularly skillful in pursuing their interests through their highly developed social skills, which, in turn, led to a further evolutionary increase in their socio-cognitive abilities (Humphrey [1976] 1988; Byrne and Whiten 1988; Dunbar 2009). The above-mentioned abilities of great apes could therefore be understood as the outcome of a socio-evolutionary dynamic that resulted from the complexities of intra-group competition. Hence, it seems problematic to claim, as Mead (1925, 263) does, that the "social conduct" of animals is restricted to "seasonal processes". Instead, many animals, especially nonhuman primates, interact constantly with other members of their group and these interactions shape their behavior and cognition.

With regard to the evolution of human agency and perspective-taking it is also important to ask whether great ape behavior is structured by *normative or moral motives*. As has been shown, Mead discusses questions of normativity in his account of socialization but omits them on the evolutionary time scale. Hence, the question arises

nected to other important processes such as of (social) learning or causal cognition (see, e.g., Sanz, Call, and Boesch 2013; Mann et al. 2012).

[28] This difference between vocal and manual communication is interesting for another reason. The fact that apes use some kinds of manual communication in "flexible and strategic ways that are in some ways sensitive to the audience" (Tomasello and Call 1997, 249) suggests that uniquely human symbolic communication did not originally evolve through changes in vocal communication but started with developments in manual communication (see especially Corballis 2003; Tomasello 2008). While this theory runs counter to Mead's "vocal gesture" argument, it would actually fit in better with the pragmatist emphasis on the importance of the hands for human action and cognition in general (see, e.g., James 1950[1890], 24–27; Dewey 1896, 358–359, 367-369) and with Mead's arguments on the importance of manual manipulation for human object constitution and perception in particular (see section 2.2).

whether normatively regulated behavior is human-specific or not. To answer this question, Tomasello examines the interactions of great apes with regard to two basic forms of morality. On the one hand, he looks for (pre-)forms of a *morality of fairness*. Therefore, he analyzes their cooperative activities to see whether principles of commitment and fairness are effective in them. In his opinion, the analysis speaks against the existence of principles of commitment and fairness (Tomasello 2016, 32–34). Experimental findings suggest that cooperative interactions of primates are strongly instrumental and not linked to considerations of fairness. Furthermore, it seems that primates do not have strong intrinsic motives for cooperation. For example, chimpanzees do not try to re-engage others in joint activities if they cease to play or cooperate for no apparent reason (Warneken and Tomasello 2006). Also, if they both benefit from cooperation in an experiment, chimpanzees do not divide the spoils equally (Melis, Call, and Tomasello 2006). In both cases, this behavior contrasts markedly with human children, for whom such cooperation is of central motivational importance, in some cases already at the age of one and a half years (Warneken et al. 2011). These findings also converge with field primatological findings that show that chimpanzees do not actively and equally share after a group hunt. Instead, they only share passively, that is, the chimpanzee that catches the monkey accepts that other group members take away some of the flesh because she cannot monopolize all of the monkey's body (Tomasello 2016, 29, 44-45). Only between close and reliable cooperation partners can reciprocal support be observed (Tomasello and Vaish 2013, 233–34). Overall, it appears that primates primarily view other group members as a kind of "social tool" (Tomasello and Vaish 2013, 241), which is necessary to achieve their goals, but to which there are no normative obligations.

On the other hand, Tomasello asks to what extent (pre-)forms of a *morality of sympathy* can be found in great apes, i.e. genuinely prosocial behavior that benefits others at one's own expense.[29] If one examines the interactions of great apes to determine whether prosocial behavior occurs in them, it becomes apparent that under certain conditions they help other individuals altruistically (Tomasello 2016, 28–31). This applies not only to their immediate relatives, but also to group members that have a special value for them, i.e., allies or friends. Experiments show, however, that chimpanzees sometimes even help unknown humans or conspecifics. For example, in an experiment, they help conspecifics to open a door leading to a room with food, even if they themselves have no chance of getting to the food (Warneken et al. 2007). Hence, the tendency to help others, which is so markedly pronounced in human children, is also evident in their closest primate relative: "chimpanzees have the capacity to use a newly acquired skill to help a conspecific as well. This helping occurs spontaneously and repeatedly, even in a novel situation when no reward is expected and no previous rewarding could have trained them to act accordingly" (Warneken et al. 2007, 1418).

From these findings, Tomasello concludes that one can discern elements of a morality of sympathy in great apes, but that they do not show an understanding of fairness or justice. He thus formulates "a middle theoretical position" (Tomasello 2016, 36): Neither does he deny any prosocial inclination to nonhuman primates, as Joan Silk does. Nor does he maintain that nonhuman primates "possess the roots of human morality, including not only a sense of sympathy but also a sense of reciprocity as a forerunner to concerns for fairness and justice", as Frans de Waal claims (Tomasello 2016, 36). In the end Tomasello (2016, 2) maintains that humans remain the only moral primates. Nevertheless, with regard to the evolution of human morality, Tomasello argues that the protomoral aspects of great ape sociality could serve as a kind of evolutionary springboard that

[29] On the distinction between a morality of sympathy and a morality of fairness, see Tomasello (2016, 1-2, 36-37, 49-50).

allowed for the further development of human morality (Tomasello and Vaish 2016, 190, 212).[30]

> And so we hypothesize that the last common ancestors of humans and great apes were at least somewhat prosocial creatures, that is, toward kin and friends and in the overarching context of intragroup competition. Though modest, this starting point cannot be ignored because, in point of fact, much of human morality, in a very broad sense, is based on this kind of sympathy for particular others, including especially friends and family. Humans have not left this moral dimensions behind; they have simply developed some other forms of morality on top of this that have led them to care for and respect a wide variety of other human beings with whom they are less intimate – not only because they sympathize with them but also because they feel they ought to. (Tomasello 2016, 38)

3.2 Two key steps in the development of human sociality and perspective-taking

Given the contrast between animal and human sociality outlined by Mead (see section 2.1), the gulf between the two forms of social coordination seems almost impossible to bridge. Such a deep gulf would require an enormous leap from a fixed, instinctively regulated and completely amoral to a flexible, self-reflexive and normatively structured mode of behavior. Such an evolutionary leap seems implausible, to say the least. By contrast, ethological, especially primatological, research results allow for a more gradualistic understanding of the evolution of different forms of social coordination. Yet, the work of Tomasello is not only instructive because it provides insight into a mode of social coordination that lies 'between' the two modes Mead describes. Especially in his more recent work, Tomasello also strives to understand how more complex forms of sociality and perspective-taking evolved *in the course of hominin evolution*, that is, in the time-period *after* the human line diverged from the one leading to the chimpanzee genus (consisting of the common chimpanzee and the bonobo). Starting from the time of the 'last common ancestors,' Tomasello argues for a two-step development towards fully developed human sociality, agency, and normativity. This two-step argument will now be discussed.

According to Tomasello, the most profound change in hominin evolution was the turn towards a *far more cooperative way of life*. If one compares the social interaction of humans and great apes, the differences in foraging are particularly striking (Tomasello 2016, 42–45, 57-60). Humans obtain their food mainly through practical cooperation. Other primates also search for food in groups, but they almost never work together, but rather act side by side. It is also instructive that the few cases of collaborative foraging – such as the much-discussed chimpanzee hunting for red colobus monkeys – take place during those phases of the year when food is abundant (Tomasello 2016, 27; Tomasello and Vaish 2013, 234–37). Thus, while for great apes the collaborative provision of food is a luxury, for humans it became indispensable. Similar contrasts can be observed in other areas of interaction. For example, in contrast to great apes, humans regularly support each other in child care (especially Hrdy 2011). Also, human communication has a constitutively cooperative structure (especially Tomasello 2008, ch. 3).

According to Tomasello, these pronounced differences in the patterns of social life began with the appearance of early human species around 2 million years ago. The emergence of these differences was triggered by an external shock that drastically changed the environmental conditions. Tomasello assumes that climatic changes initially led to an expansion of open land areas, which increased competition from ground-dwelling primates such as baboons. This competition forced the early humans to cooperate more closely. Such cooperation may have been necessary to defend carrion against other animals, but later on, the division of labor in big game hunting became a key driver of cooperation (Tomasello 2016, 3-4, 44-45).

In this way – according to Tomasello's (2016, 1–8) "interdependence hypothesis" – people were gradually forced to cooperate more intensively. The individuals were faced with the alternative of either cooperating or

[30] As has been mentioned, Tomasello assumes that the sociality of the great apes is close to the mode of social coordination from which the development of specifically human sociality and agency started.

starving. At first, therefore, it was a matter of forced and instrumental cooperation, which was beneficial for both, since together they were able to secure for themselves a chance of important supplies of food, which would have been completely barred to them alone. Tomasello (2016, 13, 18) refers to this form of purely instrumental cooperation as "mutualism". Also, because early humans were now careful to select reliable and good cooperation partners in the course of their cooperation, their social-cognitive and motivational characteristics became even more pronounced. In these ecological conditions, those "individuals, who are coordinating actions with one another more regularly and tolerantly, would then be in a position for natural selection […] to specifically favor cognitive and motivational machinery supporting more complex collaborative interactions" (Tomasello 2008, 194). This evolutionary dynamic, Tomasello argues, led to the emergence of what he calls "joint intentionality" (especially Tomasello 2014, ch. 3). Individuals that are engaged in joint intentionality are not only able to take the perspective of the other individual but also know that they both share each other's perspective. Only through joint intentionality, a "common ground" between two individuals can be established because such a common ground presupposes that the individuals know that the other knows something *and* that both individuals know that they both know it.

Because of the turn toward cooperation and the emergence of joint intentionality early humans became able to mutually adopt their perspectives with regard to their common goals. Also, they became more and more willing to consider the other's perspective and to cooperate in a reliable and helpful manner. The most obvious consequence of this new capacity of joint intentionality was the emergence of pointing (Tomasello 2014, 50–51). Because the essence of pointing is to let someone else know something that is of interest or use for her, it is a constitutively cooperative form of communication. This is why, according to Tomasello, pointing only emerged after the early humans became more cooperative. The act of pointing and its foundation, joint intentionality, thus are not only connected to phylogenetic changes in social cognition but also to the development of strong cooperative motivations. This explains why nonhuman primates, despite their complex socio-cognitive capacities, do not point for each other in their natural habitat (especially Tomasello 2006).

The early humans' new social-cognitive and motivational characteristics gradually transformed the instrumental mutualism of the early phase into a dyadic normativity, which Tomasello (2016, ch. 3) calls "second-personal morality". In contrast to mutualistic collaboration, this kind of morality not only manifested itself in the concern for the well-being of others but also in the willingness to recognize them as equal cooperation partners and to help them at one's own expense. Also, this second-personal morality manifested itself in the fact that the first forms of role ideals developed. For example, within contexts of collaborative hunting the role ideal of a reliable and effective chaser emerged (Tomasello 2016, 54). In the context of this early morality, these role ideals were bound to concrete interactions and persons, i.e. they were characterized by a limited validity (Tomasello 2016, 83–84). Nevertheless, these role ideals provided the first means of perspectival self-evaluation, through which the individuals could compare their actions to a concrete normative standard. To use Cooley's ([1902/22] 2009, 183–84) words, within the context of this second-personal morality, early humans became used to view themselves in a first, albeit situationally and personally confined, normative "looking glass".

The second-personal morality outlined above developed, according to Tomasello, up until about 400,000 years ago. Then, in the course of the emergence of modern humans about 200,000 years ago, a second step towards an "objective morality" occurred (Tomasello 2016, ch. 4). Tomasello assumes that the evolutionary turn towards increased cooperation now became a problem to a certain extent. Because the cooperative form of social coordination was so successful, a marked population growth not only led to a considerable increase in the

size of the individual groups, but also meant that the different human groups could no longer evade each other as before. Inter-group competition thus became a constant threat. As a result of this ecological change, "group life in general became one big interdependent collaboration for maintaining group survival, in which each individual had to play his or her role" (Tomasello and Vaish 2013, 239). Thus, it was no longer only the predominantly dyadic cooperation within the framework of practical interaction that was important. Instead, circumstances increasingly forced individuals to participate in collective practices of all group members – for example, in the context of group defense (Tomasello 2019, 5).

In terms of social cognition, this dynamic in social evolution led to a further decisive development. The individuals now increasingly viewed themselves from the perspective of the entire group and no longer only through the eyes of individual cooperation partners. A transition occurred from the "joint intentionality" of early humans to the "collective intentionality" of modern humans (Tomasello 2014, ch. 4, 2016, 92–97). Tomasello (2016, 96) describes this change explicitly in terms of Mead as the emergence of the "generalized other" in human history. As in Mead's ontogenetic account, the phylogenetic appearance of the generalized other had far-reaching consequences in terms of normativity. Most fundamentally, the genesis of generalized perspectives led to an actor-neutral understanding of norms and thus to an "objective" understanding of "right" and "wrong" (Tomasello 2016, 98–105). This had further consequences. First, the status of roles changed. In contrast to the dyadic cooperation of early humans, the role expectations and ideals of modern humans no longer resulted only from local and situational contexts. Rather, roles and the expectations associated with them were now mostly part of a collectively shared and communicatively transmitted knowledge – a "cultural common ground" (Tomasello 2016, 93–96). Thus, for the first time individuals became not only part of practical cooperative relationships but also members of group-specific cultural institutions: "Making such cultural practices formal and explicit in the public space turned them into full-blown cultural institutions, with well-defined roles" (Tomasello 2019, 5). Second, "objective morality" generates a previously unknown peer pressure to conform with the standards of the group (Tomasello 2016, 88–90). The members now demonstrated their group membership by acting in conformity with the norm. Importantly, these standards not only referred to *what* the individuals did but also to *how* they did it. Third, expectations and standards became more and more internalized. Acting in conformity with collective standards was therefore now demanded not only by 'external', but increasingly also by 'internal authorities'. These 'internal authorities' consist of moral self-regulation and the formation of a moral identity, which is largely guided by social emotions such as guilt and shame (Tomasello 2016, 107–15).

4. Revision: Toward a refined conception of perspective-taking

As an "empirically responsible philosopher" (Kilpinen 2013), Mead claims that his theoretical approach has to be tenable in the light of empirical results in various disciplines. Given the scientific advances in the last one hundred years, it does not come as a surprise that Mead's theory has to be modified in various respects. With respect to his evolutionary arguments we can now use the lessons from primatology, anthropology, and developmental psychology to arrive at a refined account of perspective-taking.

In order to arrive at such a refined account, I propose to transform Mead's unsystematic terminology into three clearly distinct concepts that specify *three different levels of perspective-taking*. As has already been mentioned, Mead uses different formulations to refer to the process of perspective-taking interchangeably. In contrast, I suggest to distinguish systematically between the capacity to "take the attitude of the other" and the capacity to "take the role of the other" (which comes in two forms). According to this distinction, "*attitude-taking*" does not imply such a complex understanding of

the social situation as "role-taking". Individuals that are able to "take the attitude of the other" understand that their actions influence the behavior of co-present group members. Moreover, these individuals are able to anticipate the behavior of these co-present individuals by adopting their perspective with regard to their perceptions and intentions. This anticipation is based on the interpretation of concrete bodily signals ("attitudes").

Compared to attitude-taking, *role-taking* involves a more complex understanding of the social environment. To take a "role" is only possible if one can understand oneself as part of a shared and structured social context. To engage in role-taking, thus, requires the individuals to understand that they are part of a social interaction, to expect that others share this understanding, and that they all know about the sharedness of the situation. Moreover, it also requires conceptualizing this shared social situation as a structured process in which different roles are assigned. As Mead's analysis of the play behavior of children suggests, the understanding of such a role-based common ground of interaction unfolds in two different stages: First, in the "play" phase, the child is able to take the role of "significant others"; later, in the "game" phase, it becomes also able to take the role of "generalized others".[31] Hence, according to this conception, three different levels of perspective-taking have to be distinguished: *attitude-taking, significant role-taking, and generalized role taking*.

The three levels of perspective-taking, I argue, emerge consecutively in human ontogeny – similar to Mead's original account. Current research in developmental psychology, such as Tomasello's, confirms that Mead's *ontogenetic account* can still claim validity. For example, Tomasello and Rakoczy (2003, 139) summarize their own view on human ontogeny by means of Mead's concepts:

> In the terms of Mead (1934), the child is going from guiding its actions via an internalized 'significant other' to guiding its actions via an internalized 'generalized other'. Importantly, this difference enables a new understanding of human mental activity in terms of not only individual beliefs but also of collectively intentional beliefs – which have the world-making power to create cultural-institutional realities. Thus, 2-year-olds' understanding of intentions simply does not enable them to grasp the workings of cultural institutions such as money, marriage, and government – whose reality derives from collective practices and beliefs in their existence – whereas 4- and 5-year olds, with their newly acquired concepts of belief and reality, are in a position to begin learning about these collective realities. Indeed in virtually all cultures in which there is formal education, where children learn about such things as cultural institutions and their workings, 5 to 6 years of age is the canonical starting point.

This quote also suggests that, by drawing on this research a chronology of the ontogenetic development can be given – something we do not find in Mead's writings (Joas [1980] 1985, 120). The key steps in this chronology are the following: Within the first year of life, children acquire the capacity of attitude-taking.[32] In the course of the second and third year of life, the child learns to take the role of significant others. Finally, during the fourth and fifth year, children start to take the role of generalized others.

The present article did not focus on the ontogenetic time scale, however. Instead, it looked into current results in primatology and anthropology in order to reconstruct *the gradual evolution of perspective-taking and human agency*. This gradual evolution, it is argued, also followed a three-step development of perspective-taking. According to this evolutionary narrative, the first level of perspective-taking occurred before the appearance of humans. The findings described above suggest that there are nonhuman forms of social coordination that cannot be adequately captured by Mead's conceptualization of animal sociality. Great ape behavior, in

[31] See the third aspect in section 2.3 for a short summary of Mead's analysis of play behavior.

[32] Although it is not part of his well-known distinction of play forms, one can argue that Mead also describes play interactions that are not yet structured by role-taking (e.g., Mead [1934] 2015, 150). Instead, these play interactions are based on the mere exchange of attitudes. For example, infants enjoy the interactive play with interesting objects (such as a ball or a rattle). Also, early playful interactions like peekaboo are based on the understanding (or developing understanding) of emotional attitudes (such as happiness or surprise).

particular, seems to be based on at least a basic capacity of perspective-taking. As Tomasello (2008, 49) argues "apes understand others in terms of their goals and perceptions and how these work to determine behavioral decisions, that is, they understand others as intentional, perhaps even rational, agents". As has been seen, the apes' social skills are used in strongly strategic interactions. Nevertheless, great ape sociality shows elements of a morality of helping and sympathy, while concepts of justice and fairness seem to be absent. Using the new terminological distinction, I suggest that *nonhuman primates*, especially the great apes*, are able to take the attitude of the other*.[33]

While great apes – and, hence, the imaginary last common ancestor – possess(ed) highly developed social skills, it was only within hominin evolution that the two more complex forms of perspective-taking emerged. The first step, coinciding with the emergence of *early humans*, took the form of *significant perspective-taking* of individuals engaged in practical cooperation. This limited form of perspective-taking (or in Tomasello's terms: joint intentionality) co-evolved with a "second-personal morality" that is built on the ability and willingness of individuals to evaluate and control their current cooperative activity with regard to the normative perspective of their cooperation partner whom they accept as equal and whose wellbeing they care about. In a second step, coinciding with the emergence of *modern humans*, this dyadic form of perspective-taking and morality became more complex. Humans now planned, controlled, and assessed their own behavior as well as that of others according to transsituational and objective standards that were perceived not as representing the perspective of specific individuals but of collective entities such as groups, institutions, or organizations (i.e., "generalized others"). Hence, it was only with modern humans that full-fledged *generalized perspective-taking* (or in Tomasello's terms: collective intentionality) evolved.

In contrast to Mead, current research also attempts to identify *evolutionary conditions and challenges* that led to the gradual development of perspective-taking and human-specific agency. In the context of primate evolution, it appears that group-internal competitive dynamics have been particularly important for the refinement of social cognition, leading to the "Machiavellian" form of attitude-taking. The emergence of human-specific forms of perspective-taking and agency was then facilitated by ecological changes that forced early humans to engage in increasingly complex forms of cooperation. In the case of early humans, this cooperative turn was promoted by habitat changes and increased competition from other species. The emergence of modern human sociality, in turn, was fostered by increasing intergroup competition and rivalries.

Research in primatology and anthropology, hence, suggests that both the phylogenetic and the ontogenetic development of human sociality and agency were structured by the emergence of the same three levels of perspective-taking. As has been shown, Mead suspected that parallels between these two time scales existed. However, he was only able to reconstruct the gradual development of perspective-taking and agency in the course of socialization, that is, on the ontogenetic level. In contrast, on a phylogenetic time scale he contented himself with a dichotomous juxtaposition of animal and human sociality and social cognition. Current research now opens up the possibility to reconstruct a more gradual evolutionary development and, thus, to 'synchronize' the different time scales. This reconstruction and synchronization, then, results in a refined conception of perspective-taking, which is summarized in table 1.

[33] Crucially, I do *not* claim that nonhuman primates are the only nonhuman species with the capacity to take the perspective of others. The focus on primates, especially apes, results from the aim of the paper: to outline the social evolution of *human* perspective-taking and agency. Current research in cognitive ethology suggests that very different animal species, including dogs, corvids, and dolphins, possess the capacity of perspective-taking. In other words, Mead was not only wrong about non-primates but about a lot of animals.

Table 1: Stages and time scales of perspective-taking, agency, and social coordination

Phylogenetic time scale	***Last common ancestor / Great apes***	***Early humans***	***Modern humans***
Level of perspective-taking	*Taking the attitude of others*	*Taking the role of significant others*	*Taking the role of generalized others*
Mode of agency and social coordination	• Attitude-taking focusses on intentions and perceptions of specific and co-present others • No understanding of roles • Elements of a morality of helping and sympathy • No concept of justice and fairness	• Roles linked to current situation of practical cooperation • Roles as situational, complementary, and reversable • Agent dependent and situational role ideals • "Second-personal" concept of fairness and justice	• "Bird's eye-view" on role-relations • Agent independent and abstract role ideals • "Objective morality" and generalized understanding of justice • Social pressure to conform to cultural norms
Ontogenetic time scale (of modern humans)	***First year***	***Second and third year***	***Fourth and fifth year***

Of course, the arguments presented here can only be a first step toward a refined pragmatist conception of perspective-taking. In this paper, I focused on the social evolution of perspective-taking and contrasted Mead's arguments with the work of Michael Tomasello. This approach necessarily involves limitations and problems. At least three central aspects should be addressed in further research:

1) Obviously, the arguments presented here have '*temporal limitations*.' This holds true from an ontogenetic perspective: Both Mead and Tomasello focus on the first six years of socialization, while the further development is omitted. Hence important questions are not examined. For example, the importance of adolescence for the development of perspective-taking is not discussed (Joas [1980] 1985, 120). This would be interesting, however, for different reasons: For instance, the changes in perspective-taking that result from conflicts between different perspectives and the subsequent emotional dynamics that occur in adolescence would be an instructive subject. An analogous limitation can be identified on the historical time scale: Tomasello's reconstruction of perspective-taking stops with the emergence of modern humans. However, within Tomasello's framework, the term "modern humans" refers to the species of *Homo sapiens*, not to "modern societies" in a sociological sense. Therefore, when analyzing human sociality and perspective-taking, Tomasello usually refers to small societies of hunter-gatherers. Whether and how perspective-taking changes with the emergence of complex, pluralistic, highly technological state societies remains unclear in his work. In contrast, in Mead's work we find studies that look into the dynamics of perspective-taking in modern societies, for example with regard to punitive justice or international relations (Mead 1918, 1929). However, Mead does not systematically connect these arguments with the concepts he develops in his account of the ontogenetic development of perspective-taking.

2) Secondly, it is important to see that Tomasello tends to interpret human activity as practical cooperation that serves a specific evolutionary function. With respect to perspective-taking, this rather *rationalistic explanatory strategy* seems problematic for two reasons: First, in contrast to other important theories of human evolution (Donald 1993; Bellah 2011), Tomasello pays little attention to non-teleological forms of (inter-)action such as games, rituals, or artistic practices. However, as his own work in developmental psychology suggests, non-teleological activities (such as playing) are closely linked to the capacity of perspective-taking. Nevertheless, in his evolutionary account, these kinds of activity hardly play a role. Second, Tomasello interprets cooperation not only as highly rational but also as prosocial behavior. Therefore, he tends to overlook that role-taking also gives rise to a broad spectrum of human-specific forms of antisocial behavior – from organized warfare to torture (Nungesser 2016, 267–68, 2019, 393–95). In contrast to such a rationalistic and overly optimistic view on action, a pragmatist perspective suggests that rational behavior is only one specific form of action and that all forms of action – including cruel or irrational ones – have to be conceptualized within one theoretical framework (Joas [1992] 1996, ch. 3.1; Jung 2009).

3) Finally, important difficulties result from Tomasello's methodological strategies. Two are of special importance: First, Tomasello uses extant great apes as 'stand-ins' for earlier species in order to 'look back in time.' In doing so, he wants to understand how the last common ancestors of humans and chimpanzees may have lived. Tomasello himself concedes that this strategy necessarily entails a speculative moment. Yet, from his point of view, there is simply no alternative if one wants to outline a plausible evolutionary narrative (see, e.g., Tomasello 2016, 154). Other approaches to human evolution criticize this methodological strategy as overly speculative (e.g., Dux 2017, 37, 170). However, alternative approaches struggle with other problems such as the poverty of paleoanthropological or paleoarcheological findings and the difficulty to interpret them. Second, Tomasello often makes use of the idea of recapitulation, in order to relate ontogenetic developments to evolutionary and historical changes. As is well known, the idea of recapitulation was hotly debated in evolutionary theory. Despite its popularity at the end of the 19th century, the idea of recapitulation was finally rejected in biology – especially in its extreme form as in Ernst Haeckel's "biogenetic law" (see, e.g., Mayr 1982, 474–76). Yet, it is important to see that Tomasello's use of recapitulation differs from these earlier arguments in two crucial respects. First, Tomasello's basic assumption differs from 'classical' recapitulation theories because he does not posit a parallel development of embryonic and phylogenetic developments. Rather, he claims that there are parallels between the socio-cognitive developments of human children and the evolutionary and cultural development of the human species. Second, Tomasello repeatedly emphasizes that he is aware of the methodological problems connected with recapitulation arguments. Because of this, he uses the idea of recapitulation only as a heuristic strategy that helps to generate hypotheses about historical processes that are difficult to investigate in other ways (Tomasello 2008, 268, 280, 2014, 41, 144, 150). In other words, the notion of recapitulation does not proof anything but only facilitates the generation of hypotheses that, then, have to be proven by other means.

Given these methodological difficulties, it seems obvious to combine the three methodological strategies (that is, the comparative, paleoanthropological, and developmental strategy) in order to reconstruct the emergence of human sociality, cognition, and agency. Interestingly, in recent studies, Tomasello tries to corroborate his comparative and developmental arguments with findings from paleoanthropology (see, e.g., Tomasello 2014, 36, 79). This seems to be a promising strategy that may allow for a stronger integration of other theories that also strive to understand human evolution in a non-reductionist way (e.g., Donald 1993; Deacon 1998; Sterelny 2012; Dux 2017). Future research should draw on these theories in order to further enrich

the pragmatist understanding of the social evolution of human perspective-taking and agency.

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